CLAIMS

1. A membrane for use in an analyte sensor, comprising:

at least one polymer; and

at least one superoxide-dismutase/catalase catalyst.

2. The membrane of claim 1, wherein the polymer is selected from a group consisting of polyvinylpyridine, a derivative of polyvinylpyridine, polyvinylimidazole, a derivative of polyvinylimidazole, and any combination thereof.

3. The membrane of claim 1, wherein the polymer comprises at least one functional group selected from a nitrogen group, a pyridine group, a reactive group, and any combination thereof.

4. The membrane of claim 1, wherein the catalyst comprises at least one of superoxide dismutase and catalase.

5. The membrane of claim 1, wherein the catalyst comprises a mimic of at least one of superoxide dismutase and catalase.

6. The membrane of claim 1, wherein the catalyst comprises a metal selected from a group consisting of manganese, iron, copper and zinc.

7. The membrane of claim 1, wherein the catalyst comprises MnTPyP.

8. The membrane of claim 1, wherein the catalyst comprises MnTPyP quaternized at at least one pyridyl site.

9. The membrane of claim 1, wherein the catalyst comprises MnTPyP quaternized at at least one pyridyl site by a quaternizing moiety and a pyridyl or an amino functional group attached to at least one quaternizing moiety.

10. The membrane of claim 1, wherein the catalyst comprises manganese coordinated in a macrocyclic, penta-amine ring.

11. The membrane of claim 10, wherein the catalyst further comprises a reactive amino or pyridyl group.

12. The membrane of claim 1, wherein the catalyst comprises an agent having superoxide-dismutase activity and a reactive amino or pyridyl group.

13. The membrane of claim 12, wherein the agent comprises a transition metal chelate of pentaazacyclopentadecane.

14. The membrane of claim 12, wherein the agent comprises a transition metal chelate of salen.

15. The membrane of claim 1, wherein the catalyst comprises a bypyridine manganese complex.

16. The membrane of claim 1, wherein the catalyst comprises a cyclic salen-transition-metal complex.

17. The membrane of claim 1, wherein the catalyst comprises an agent selected from a group consisting of a manganese porphyrin complex, an iron porphyrin complex, a manganese polyamine complex, an iron polyamine complex, a manganese salen complex, an iron salen complex, and any combination thereof.

18. The membrane of claim 1, wherein the catalyst comprises a biporphyrin superoxide-dismutase/catalase mimic.

19. The membrane of claim 1, wherein the catalyst comprises MnTBAP.

20. The membrane of claim 1, the membrane sufficient for transcutaneous use.

21. The membrane of claim 1, the membrane sufficient for use in an amperometric sensor.

22. The membrane of claim 1, the membrane is sufficient for use in a glucose sensor.

23. An analyte sensor, comprising:

a working electrode comprising a conductive material and a sensing layer in contact with the conductive material;

a membrane disposed on the sensing layer, the membrane comprising:

at least one polymer; and

a superoxide-dismutase/catalase catalyst; and

a counter electrode in operable communication with the working electrode.

24. An analyte sensor, comprising an analyte-flux-reducing membrane and a superoxide-dismutatse/catalase catalyst incorporated into the membrane.

25. The sensor of claim 24, wherein the catalyst is incorporated into the membrane via covalent bonds.

26. The sensor of claim 25, wherein the covalent bonds are between a polymer of the membrane and the catalyst.

27. The sensor of claim 24, wherein the catalyst is incorporated into the membrane via ion-exchange interactions.

28. The sensor of claim 27, wherein the ion-exchange interactions are between a polymer of the membrane and the catalyst.

29. The sensor of claim 24, wherein the catalyst is incorporated into the membrane via a structure of the membrane.

30. The sensor of claim 29, wherein the structure is a polymer structure of the membrane.

31. The sensor of claim 29, wherein the structure is sufficient to confine the catalyst for a period relative to a lifetime of the sensor.

32. The sensor of claim 29, wherein the structure allows the catalyst to leach therefrom over a lifetime of the sensor.

33. The sensor of claim 24, wherein the catalyst is incorporated into the membrane via adsorption.

34. The sensor of claim 24, wherein the catalyst is present in an amount of from 0.0001 to about 30 weight percent relative the membrane.

35. The sensor of claim 24, wherein the catalyst is present in an amount of from 0.001 to about 20 weight percent relative the membrane.

36. The sensor of claim 24, wherein the catalyst is present in an amount of from 0.01 to about 10 weight percent relative the membrane.

37. The sensor of claim 24, wherein the catalyst is manganese 5,10,15,20-tetra(4-pyridyl)-21H,23H-porphine chloride.

38. An analyte sensor, comprising:

a working electrode comprising a conductive material and a sensing layer in contact with the conductive material;

a counter electrode in operable communication with the working electrode; and

a superoxide-dismutase/catalase catalyst disposed in a locale of the sensing layer in an amount sufficient to reduce a concentration of at least one of superoxide and hydrogen peroxide within the locale of the sensing layer.

39. The analyte sensor of claim 38, wherein the sensor is a transcutaneous glucose sensor.

40. An analyte sensor, comprising:

a working electrode comprising a conductive material and a sensing layer in contact with the conductive material;

a counter electrode in operable communication with the working electrode; and

a catalyst disposed in a locale of the sensing layer in an amount sufficient to reduce a concentration of at least one metabolite within the locale of the sensing layer, the catalyst selected from a group consisting of a proteinaceous catalyst, a non-proteinaceous, organometallic catalyst, and any combination thereof.

41. The analyte sensor of claim 40, wherein the catalyst is a superoxide-dismutase/ catalase catalyst.

42. A method for making an analyte sensor, comprising:

applying a solution to an analyte sensor, the solution comprising at least one polymer and at least one superoxide-dismutase/catalase catalyst.

43. The method of claim 42, further comprising curing the solution after said applying.

44. A method comprising providing a superoxide-dismutase/catalase catalyst in a fluid in a locale of a sensing layer of an analyte sensor.

45. The method of claim 44, wherein the providing comprises providing the catalyst in an amount sufficient to decrease noise associated with data from the sensor.

46. The method of claim 44, wherein the providing comprises providing the catalyst in an amount sufficient to decrease a number of low-glucose-reading incidents associated with the sensor.